

### **REMARKS**

Entry and consideration of the following amendments and remarks is respectfully requested.

#### **Status of the Claims**

Claims 1-15 are pending, claims 4 and 8 having been amended herein. Claims 1-15 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claims 1-4 and 6-15 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Schmaeng. Claim 5 was rejected under 35 U.S.C. §103 (a) as being unpatentable over Schmaeng and in view of Grossmann et al..

#### **Claim Rejections under 35 U.S.C. §112, Second Paragraph**

Claims 1-15 were rejected under 35 U.S.C. §112, second paragraph as being indefinite. Claims 4 and 8 have been amended herein to correct the informalities identified by the Examiner in the Office Action. Additionally, the specification has been amended to merely clarify subject matter previously disclosed. No new matter has been added.

Additionally, the Office action states that the terms “admixture” and “admixture layer” are indefinite terms not well defined in applicant’s specification. Applicant asserts that a more correct translation of the original Finnish terms would have been “additive,” “additive(s) layer” or “additive(s) containing layer.” Moreover, admixture layer does contain additives and includes agents such as starch, fillers, fines, retention agents, such as polyacrylamide, polyacrylimide, special chemicals, hydrophobifying sizes and equivalent. Additives are added to the stock so that the layer includes both the stock and the additives, and the layer is not necessarily a separate layer

of only additives.

In the present application, term additives (admixture) is not applicable to wood fibers or white water. Wood fibers are not additives because wood fibers are the elements of which the web constructed. In the present application, the term additives (admixture) is defined as substances that improve the properties of the fibers in the web to be formed and substances that influence the printability of the web. As the specification states on page 5, lines 28-30, such additives comprise starch, fillers, fines, retention agents, sizes and equivalent.

Accordingly, it is submitted that the Examiner's rejections of the claims under 35 U.S.C. §112, second paragraph have been overcome.

**Claim Rejections Under 35 U.S.C. §103(a)**

Claims 1-4 and 6-15 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Schmaeng. The Office Action also rejected Claim 5 under 35 U.S.C. §103 (a) as being unpatentable over Schmaeng in view of Grossmann et al.. The Examiner's rejections are respectfully traversed.

The present invention is drawn to a method for application of a web layer including additives in the web forming unit of a board machine. The additives are added to the stock in order to increase the fines content in the layer and to promote the bond strength between the faces. Additionally, the stock flow produced out of the same fresh stock is divided into separate component flows. The component flows are passed into a multi-layer headbox and from the headbox into a gap former. The advantage of applicant's method is that the method promotes formation and strength and internal bond strength for the board.

Schmaeng discloses a method for supplying white water from a single silo in the forming of a multi-ply web. Schmaeng reveals three separate stock chests (24a, b, c) each being linked to a corresponding stock pump (28a, b, c) and screen (22a, b, c). The Office Action states that it would have been obvious to have replaced Schmaeng's three stock chest systems with a common fresh stock flow which, after mixing with white water, would be divided into three component flows. Applicant respectfully traverses this statement. It would not be obvious to modify Schmaeng and Schmaeng does not teach the modification of replacing the three stock chest system. The purpose in Schmaeng is to use different stock systems in different layers of a web so that cheaper stock compositions can be used in the inner layer than in the outermost layers. (Column 3, lines 6-17). Conversely, Applicant's invention discloses separate component flows produced from the *same* fresh stock. Moreover, the stock system in Schmaeng discloses a fan pump for white water, a single white water silo and a fan pump for each of the three stock compositions. Schmaeng discloses that the three stock compositions are taught for the system. Schmaeng does not mention a common fresh stock flow. Therefore, Schmaeng does not suggest to replace the three stock system disclosed in Schmaeng with a common fresh stock flow as in Applicant's invention.

Applicant has disclosed that a fresh stock flow divided into separate component flows provides an advantage, is used for a particular purpose and/or solves a stated problem. Applicant asserts that when using different stock compositions in a multi-layer headbox, it is difficult to reach a layer purity high enough to reach the benefit that is being aimed at. In other words, the stock composition used in the inner layer will be visible on the outer face of the web. An advantage of the stock system of the present invention is that a single-stock system is used so that

each layer of the multi-layer headbox has the same stock composition, and additives for improving the bonding strength are introduced into a layer that will later come into contact with an adjacent layer.

Schmaeng does not teach, alone or in combination Applicant's invention of adding additives to a component flow to increase the contents of the fines in the web layers and the bonding strength between the faces to be combined. Schmaeng et al. discloses adding white water to the web former unit. White water is not an "additive." The additive layer of the present invention includes agents that promote binding of the web faces.

The stock delivery system of the present invention only contains one stock delivery system, one feeding chest and one feeding pump. However, Schmaeng discloses stock delivery system including a feeding chest and a feeding pump for each different stock composition that being used in the invention. Therefore, the present invention is more economical than Schmaeng and overcomes the disadvantages of Schmaeng.

Moreover, the present invention solves an industry problem in manufacturing board when two separately formed webs are combined together. Generally, the problem exists in the newer board machines with higher running speeds. Increasing running speeds of board machines has led to the use of gap formers as forming units. However, when a web is formed by means of a gap former, the fines content on the face of the web is lower than in a web formed by a conventional fourdrinier former. The problem created is that the fines content of the web is too low to make the webs adhere to each other tightly. Applicant's invention solves this fines content problem by adding additives to a component flow to increase the fines content in the layer and thereby joining the webs firmly together and improving the bonding strength of the web interface. Schmaeng or

Grossman do not address this issue or suggest a solution to this problem.

The prior art discloses that when a web is formed by means of a fourdrinier former, the running speed must be much lower than 1000 m/min. Moreover, in the prior art, when an additive that possibly improves bonding strength is applied to the interface, a separate headbox or any other suitable application device has to be constructed and placed in a position where it tends to become soiled and deteriorates. This procedure of the prior art requires stopping and cleaning of the equipment rather frequently. Therefore, the prior art solution to improving bonding strength of web faces does not function effectively at machine speeds of higher than 1000m/min.

The present invention solves the problem of improving the bonding strength between multiple layers, where Schmaeng and the prior art failed. Applicant's invention improves the bonding strength by supplying additives between two layers already before the headbox. By adding the additives before the headbox, the equipment is not damaged by the mixture as in the prior art. Therefore, the disadvantages of the prior art are overcome and forming can be carried out by a gap former which allows higher running speeds. Moreover, as in the present invention, additives are added to the layer of the multi-layer headbox that will form the top layer and that will be against the face to be combined in order to reach a sufficient bonding strength between these layers for various applications of board.

In view of the amendments to the claims made herein and the arguments presented above it is submitted that the Examiner's rejections have been overcome and should be withdrawn.

The present amendment is being submitted with a petition for a two-month extension of time and the appropriate fee. If it is determined that any additional fee is required for entry of this amendment, the U.S. Patent and Trademark Office is specifically authorized to charge such fee to Deposit Account No. 50-0518 in the name of Steinberg & Raskin, P.C.

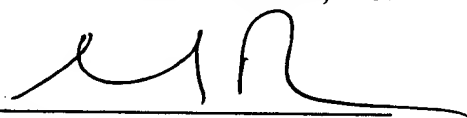
According to currently recommended Patent Office policy, the Examiner is specifically authorized to contact the undersigned in the event that a telephonic interview would advance the prosecution of this application.

An early and favorable action on the merits is earnestly solicited.


Respectfully submitted,

STEINBERG & RASKIN, P.C.

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